

**REMARKS/ARGUMENTS**

By this Amendment, claims 1-21 are pending in the application. By this Amendment, claims 1, 2, 5-11, 14 and 15 are amended and claims 16-21 are added. Reconsideration and withdrawal of the rejections in view of the foregoing amendments and the following remarks is respectfully requested.

**A. Formal Matters**

The Office Action rejects claims 9 and 10 under 35 USC §112, second paragraph, as allegedly indefinite. By this Amendment, claims 9 and 10 have been amended to obviate the rejection. Withdrawal of the rejection is respectfully requested.

**B. Claims 1-3, 5, 8, 10 and 11 are Allowable over Nunotani**

The Office Action rejects claims 1-3, 5, 10 and 11 under 35 USC §102(b) over U.S. Patent No. 4,919,551 to Nunotani. The rejection is respectfully traversed.

Nunotani discloses a tapered roller bearing structure as illustrated in Figure 1. As shown therein, a plurality of tapered rollers 13 are provided between an inner ring 11 and an outer ring 12. A retainer 17 keeps the tapered rollers spaced apart around the circumference of the bearing.

The bearing structure includes seals 18 and 19 positioned on the inflow and outflow sides of the bearing. Each of the seals includes a rigid portion which is fixed to the inner ring 11 and a flexible portion which is in contact with the outer ring 12. As shown in Figure 1, the flexible portion 24 of the inflow seal 18 can flex away from the outer ring 12 to allow oil or a lubricant to enter the bearing. The flexible portion 16 of the outflow seal 19 can also flex away from the outer ring 12 to allow oil within the bearing to flow out of the bearing.

Nunotani explains that when no oil pressure is provided at the inlet side, such as when the car or automobile having this bearing structure is turned off, the flexible portions of the two seals would be in contact with the outer ring 12, to thereby fully seal the bearing, and retain oil within the bearing. When a sufficient amount of oil pressure is provided at the inlet side, the oil pressure would cause the flexible portion of the inlet seal to flex downward, thereby allowing new oil to enter the bearing. Likewise, the oil pressure would also cause oil within the bearing to flow out from the outflow seal.

Independent claim 1 of the present application recites an oil lubricated bearing device which includes an inner ring, an outer ring, and a plurality of rolling elements placed between inner and outer rings. Claim 1 recites an oil reflow suppression member that partially blocks an oil inflow path on an inflow side of the device. Claim 1 recites that the oil inflow suppression member suppresses oil inflow between the inner and outer ring, and that a gap is always maintained between the oil inflow suppression member and at least one of the inner ring and the outer ring.

As explained above, Nunotani fails to disclose or suggest a bearing device which includes an oil inflow suppression member which is configured so that a gap is always maintained between the oil inflow suppression member and at least one of the inner ring and the outer ring of the bearing device. In fact, the Nunotani bearing structure is specifically designed so that no gap exists between the inflow and outflow seals and the outer ring when the vehicle engine is turned off, so that oil can be retained within the Nunotani bearing. As a result, the Nunotani bearing will always operate while it is full of oil. This is in direct contrast to the bearings disclosed and claimed in the present application, which are intended to operate with very little oil present within the bearing. In view of the all of the foregoing, it is respectfully submitted that Nunotani not only fails to disclose or suggest a bearing device as recited in claim 1, where a gap is always maintained between the oil inflow suppression member and the inner or outer ring of the device, but that Nunotani teaches away from a bearing structure having the claimed gap. Because Nunotani fails to disclose or suggest the above-discussed features of claim 1, it is respectfully submitted that claim 1 is allowable.

Claims 2, 3, 5, 8, 10 and 11 depend from claim 1 and are allowable for at the same reasons, and for the additional features which they recite.

For instance, claim 3 recites that a protrusion of the oil inflow suppression member has an outside diameter that is not greater than an inside diameter of an end portion on a minor diameter side of the tapered raceway of the outer ring. As shown in Figure 1 of Nunotani, this structural arrangement is not satisfied by the Nunotani bearing device.

Claim 5 recites that the shield plate of the oil inflow suppression member is an integral part of the inner ring. In Nunotani, the inflow shield 18 is not an integral part of the inner ring.

This means that it is considerably more expensive to manufacture and assemble the Nunotani bearing as compared to the bearing device recited in claim 5.

Claim 8 depends from claim 1 and recites an oil outflow promotion structure for promoting outflow of oil that enters between the inner ring and the outer ring. Not only does the Nunotani device not include an oil outflow promotion structure, Nunotani has a seal 19 on the outflow side of the Nunotani bearing structure to restrict and limit outflow. As a result, the Nunotani bearing will always operate while full of oil. And, as explained in the present application, this increases the torque required to turn the Nunotani bearing as compared to a bearing as recited in claim 8, where oil is encouraged to flow out of the bearing.

It is respectfully submitted that the dependant claims are also allowable over Nunotani for the additional reasons discussed above.

In view of all the foregoing, withdrawal of the rejection of claims 1-3, 5, 8, 10 and 11 over Nunotani is respectfully requested.

**C. Claims 1, 8 and 14 are Allowable Over JP 2001-140870**

The Office Action rejects claims 1, 8 and 14 under 35 USC §102(b) over Japanese Patent Publication No. 2001-140870 (JP '870). The rejection is respectfully traversed.

JP '870 discloses a ball bearing structure which includes an inner ring, an outer ring, a plurality of ball bearings positioned between the inner and outer rings, and a retainer which keeps the ball bearings evenly spaced around the circumference of the bearing. JP '870 fails to disclose or suggest any type of oil inflow suppression member that partially blocks an oil inflow path on an inflow side of the device. For at least these reason, it is respectfully submitted that claim 1 is allowable over JP '870. Claims 8 and 14 depend from claim 1 and are allowable for at least the same reasons and for the additional features which they recite. Accordingly, withdrawal of the rejection of claims 1, 8 and 14 is respectfully requested.

**D. Claims 4, 6, 7 and 9 are not Obvious Over Nunotani**

The Office Action rejects claims 4, 6, 7 and 9 under 35 USC §103(a) over Nunotani. The rejection is respectfully traversed. Claims 4, 6, 7 and 9 depend from claim 1 and are allowable

over Nunotani for at least the reasons discussed above. Accordingly, withdrawal of this rejection is respectfully requested.

**E. Claims 12 and 13 are Allowable Over Nunotani and Hiromasa**

The Office Action rejects claims 12 and 13 under 35 USC §103(a) over Nunotani, in view of Hiromasa (Japanese Patent Publication No. 91-77796). The rejection is respectfully traversed.

Claims 12 and 13 depend from claim 1 and include all the features of claim 1. As explained above, Nunotani fails to disclose or suggest an oil lubricated bearing device which includes the oil inflow suppression member recited in claim 1. Hiromasa fails to cure this deficiency of Nunotani. Accordingly, it is respectfully submitted that claims 12 and 13 are allowable over Nunotani and Hiromasa. Withdrawal of the rejection of claims 12 and 13 is respectfully requested.

**F. Claim 15 is Allowable over JP '870 and Yamamoto**

The Office Action rejects claim 15 under 35 USC §103(a) over JP '870, in view of U.S. Patent Publication No. 2003-0198417 to Yamamoto. The rejection is respectfully traversed.

Claim 15 depends from claim 1 and includes all the features of claim 1. As explained above, JP '870 fails to disclose or suggest a bearing device which includes the oil inflow suppression member recited in claim 1. Yamamoto fails to cure this deficiency of JP '870. Accordingly, it is respectfully submitted that claim 15 is allowable over JP '870 and Yamamoto. Withdrawal of the rejection of claim 15 is respectfully requested.

**G. New Claims**

By this Amendment, new claims 16-21 are added to the application. Claim 16 ultimately depends from claim 1 and is allowable for at least the reasons discussed above in connection with claim 1, and for the additional features which it recites.

New claim 17 recites a bearing device that satisfies a specific formula that relates the number of tapered rolling elements of the bearing to a mean diameter and a pitch circle diameter of the tapered rolling elements. The Office Action suggests that one of ordinary skill in the art

could arrive at the specific formula through routine experimentation. It is respectfully submitted that it would require far more than routine experimentation to arrive at a formula as recited in independent claim 17. None of the references of record disclose or suggest that there could or should be any sort of relationship between the number of tapered rolling elements of a bearing and a mean diameter and a pitch circle diameter of the tapered rolling elements. Accordingly, it is respectfully submitted that a device as recited in claim independent claim 17 would not have been obvious to one of ordinary skill in the art. Claims 18-21 depend from claim 17 and are also allowable over the references of record.

**H. Conclusion**

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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